Claims:

1. An adjustable mounting mechanism capable of pan, tilt, roll, and their combinations, comprising a primary planar plate member [19] for mounting any device such as an instrument/transducer or any other device to be tested, a secondary planar plate member [20] having numerous preferably, although not necessarily, equally spaced perforations drilled on its planar surface circumferentially along its periphery, two arc-shaped planar members [21] having numerous preferably, although not necessarily, equally spaced perforations drilled along their planar surfaces, and a tertiary planar plate member [22] that is capable of being mounted rigidly on a support staff means [23].

2. An adjustable mounting mechanism as claimed in claim 1, wherein the support staff means [23] permits rotation of the primary planar plate member [19] and therefore the device mounted on it, about the axis of the said support staff means [23] in the azimuthal direction through ±360°.

3. An adjustable mounting mechanism as claimed in claim 1, wherein the primary planar plate member [19], functioning as an adjustable mounting means, is provided with several radially-directed slots [30] to facilitate trouble-free attachment of any device using mounting brackets.

4. An adjustable mounting mechanism as claimed in claim 1, wherein plurality of perforations [31] are provided on the periphery of the primary planar plate member [19] and the perforations permit orientation of the mounted device in any desired position/direction.

5. An adjustable mounting mechanism as claimed in claim 1, wherein the planar plate member [19] is further attached to two other quaternary planar plate members [32] through attachment means [33] that could preferably, although not necessarily, be bolts and matching nuts means [34] that function as locking members.

6. An adjustable mounting mechanism as claimed in claim 1, wherein the quaternary planar plate members [32] and the secondary planar plate member [20] which is

preferably of substantial circular cross-section are hinged together with the use of a cylindrical-shaped central rod member [35].

7. An adjustable mounting mechanism as claimed in claim 1, wherein a first interconnecting member [49] is integrally joined to the quaternary planar members [32] to provide a rigid locating means to the two arc-shaped planar members [21].

8. An adjustable mounting mechanism as claimed in claim 1, wherein a second interconnecting member [52] connected between the arc shaped planar members [21] serves the purpose of providing rigidity among the arc-shaped members [21].

9. An adjustable mounting mechanism as claimed in claim 1, wherein the said first and the second interconnecting members [49] and [52] and the arc-shaped planar members [21] are rigidly held in position using locking means [50] and [51].

10. An adjustable mounting mechanism as claimed in claim 6, wherein the cylindrically-shaped central rod member [35] of the hinge mechanism is substantially co-axial with the axis of pitch-motion [36] so that the angle between the same can be varied about the hinge in predetermined increments with the use of a pair of coupling members [37].

11. An adjustable mounting mechanism as claimed in claim 10, wherein the coupling members are rigidly mounted between the secondary planar plate member [20] and the arc-shaped planar plate members [21], and held in position with the use of two nut means [38] and further strengthened by two lock-nut means [39], both of them functioning as locking members.

12. An adjustable mounting mechanism as claimed in claim 11, wherein the coupling members rigidly mounted between the secondary planar plate member [20] and the arc-shaped planar plate members [21], permits tilting of the device mounted on the planar plate member [19] from vertical through chosen angular increments through frontward- or rearward- pitch-angles.

13. An adjustable mounting mechanism as claimed in claim 11, wherein the coupling members rigidly mounted between the secondary planar plate member [20] and the

arc-shaped planar plate members [21], enable accomplishment of symmetric motions of the mounted device in the frontward- and rearward- pitch-motion direction, and enables tilts under pitch motions.

14. An adjustable mounting mechanism as claimed in claim 1, wherein two projecting members [40] are provided on the tertiary planar member [22] and perforations [41] are provided on the periphery of the flat surfaces of the secondary planar plate member [20].

15. An adjustable mounting mechanism as claimed in claim 14, wherein the projecting members [40] provided on the tertiary planar member [22] and perforations [41] provided on the secondary planar plate member enables tilting the planar plate member [19] and therefore the device mounted on it, through chosen angular increments in both right-hand and left-hand roll directions about the axis of roll-motion [42] that passes through the center of the secondary and tertiary planar members [20] and [22].

16. An adjustable mounting mechanism as claimed in claim 1, wherein the mounting mechanism is capable of accomplishing symmetric motions in the right-hand and left-hand roll directions, and enabling tilts under roll motions.

17. An adjustable mounting mechanism as claimed in claim 1, wherein the mounting mechanism permits tilting the planar plate member [19] at combinations of a multiplicity of chosen roll- and pitch- angles through judicious choice of appropriate perforations provided on the arc-shaped members [21] and the secondary planar member [20].

18. An adjustable mounting mechanism as claimed in claim 1, wherein the perforation located centrally on the arc-shaped planar plate member [21] defines the zero-pitch angle.

19. An adjustable mounting mechanism as claimed in claim 1, wherein perforations located towards an end portion [43] of the arc-shaped members [21] define negative

pitch angles that increment in magnitude in preferably, although not necessarily, equal angular increments from the zero-pitch angle.

20. An adjustable mounting mechanism as claimed in claim 1, wherein perforations located towards an end portion [44] of the arc-shaped members [21] define positive pitch angles that increment in magnitude in preferably, although not necessarily, equal angular increments from the zero-pitch angle.

21. An adjustable mounting mechanism as claimed in claim 1, wherein perforations located on the axis of the planar plate member [20] defines the zero-roll angle.

22. An adjustable mounting mechanism as claimed in claim 1, wherein perforations located towards a clockwise direction from the zero-roll angle position define negative roll angles that increment in magnitude in preferably, although not necessarily, equal angular increments from the zero-roll angle.

23. An adjustable mounting mechanism as claimed in claim 1, wherein perforations located towards a counter-clockwise direction from the zero-roll angle position define positive roll angles that increment in magnitude in preferably, although not necessarily, equal angular increments from the zero-roll angle.

24. An adjustable mounting mechanism as claimed in claim 1, wherein a protractor means [24] mounted on a plane, which is perpendicular to the axis of the support staff means [23] and whose central axis passing through the axis of the said support staff means [23], and rigidly held in position with the use of a threaded member [25], permits measurement of the azimuthal directions of device mounted on the planar plate member [19].

25. An adjustable mounting mechanism as claimed in claim 1, wherein the support staff means [23] is provided with sufficient number of extension collar means [26] that can slide along the exterior surface of the support staff means [23], and fixed at any desired location with the use of a fastening pin means [27].

26. An adjustable mounting mechanism as claimed in claim 1, wherein an adjustable hook means [28], which is integrally joined to the collar means [26], and having an opening

which is directed parallel to the axis of the support staff means [23], allows easy passage and secure-holding of the electrical cable means [29] that might connect the mounted device to its remote electronic/electrical sub-system means.

27. An adjustable mounting mechanism as claimed in claim 1, wherein the collar means [26] can also be attached to the support staff means [23] by other conventional methods.

28. An adjustable mounting mechanism as claimed in claim 1, wherein a multiplicity of means other than the hook means [28] can be used to support the electrical cable means [29].

29. An adjustable mounting mechanism as claimed in claim 1, wherein the said mounting mechanism can be attached to the support staff means [23] with the use of two pairs of clamp means [45] and [46], wherein the said clamp means may preferably, although not necessarily, be C-shaped clamps.

30. An adjustable mounting mechanism as claimed in claim 1, wherein the clamp means [45] is integrally joined to the tertiary planar plate member [22].

31. An adjustable mounting mechanism as claimed in claim 1, wherein said clamp means are rigidly attached to the support staff member [23] using a flexible-pad stiffener member [48], which might preferably — although not necessarily — be made of rubber.

32. An adjustable mounting mechanism as claimed in claim 31, wherein the stiffener functions as a means for reinforcing the grip between the exterior surface of the support staff means [23] and the interior faces of the clamp means [45] and [46].

33. An adjustable mounting mechanism as claimed in claim 6, wherein the central rod means [35] of the hinge mechanism is substantially co-axial with the axis of pitch-motion [36] and passes through the center of the arc-shaped pitch-motion control members [21].

34. An adjustable mounting mechanism as claimed in claim 10, wherein the coupling members [37] that are rigidly attached on a top portion of the secondary planar member [20] are substantially threaded bolt means that couple to the two arc-shaped members [21] through pairs of perforations on the said two members [21] and locked in position with the use of a pair of nut means [38] and lock nut means [39] on them.

35. An adjustable mounting mechanism as claimed in claim 1, wherein the perforations [41] drilled along the periphery of the surfaces of secondary planar member [20] and those on the two arc-shaped members [21] are substantially circular to permit accuracy in the desired angles.

36. An adjustable mounting mechanism as claimed in claim 1, wherein the projecting members [37] and [40] prevent swinging motion of the planar member [19] and therefore the device mounted on it, thereby permitting evaluation experiments under controlled dynamic conditions with the desired angular orientations.

37. An adjustable mounting mechanism as claimed in claim 1, wherein two substantially large circular portions carved out from the central portion of the planar members [20] and [22] substantially reduce motion-induced drag force during dynamic testing of the transducer, instrument, and the like in any fluid medium.

38. An adjustable mounting mechanism as claimed in claim 1, wherein the edges of all the members are chamfered/rounded to reduce flow separation and vortex shedding during dynamic testing in any fluid medium, of the device mounted on the member [19].

39. An adjustable mounting mechanism as claimed in claim 1, wherein the entire mechanism is easy to be assembled and mounted, and is amenable to quick changes of angles, thereby serving as a time saver during test and evaluation experiments.

40. An adjustable mounting mechanism as claimed in claim 1, wherein all the members of the said mechanism are coated to allow its use in any environment.

41. An adjustable mounting mechanism as claimed in claim 1, wherein fixed slots for selection of tilt angles prevent any types of reciprocating motions of the mounted device under drag force.

42. An adjustable mounting mechanism as claimed in claim 1, wherein the mounting staff member [23] is located in the middle of the planar member [22] so that the drag force which act on the mounting device during its relative motion with respect to a fluid are equally distributed on either half of the mounting mechanism and are perfectly balanced.

43. An adjustable mounting mechanism as claimed in claim 1, wherein chamfered surfaces provided to the members of the mounting mechanism enable smoothness of handling and ease in operation.

44. An adjustable mounting mechanism as claimed in claim 1, wherein the recesses on the mounting member [19] are preferably, although not necessarily, radially-oriented slits emanating from the center of the said mounting-platform [19]; thereby providing adequate space and flexibility for mounting of the device on the said platform.

45. An adjustable mounting mechanism as claimed in claim 1, wherein the mounting mechanism can be utilized in tow-tank facility for performance evaluation of motion-measuring devices, transducer, instrument, and the like and water current meters and wind-tunnel facility for performance evaluation of motion-measuring and wind-measuring devices.